

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) An injection needle having a first ground facet formed on a distal end of a needle tube and at least two ground facets subsequently formed to provide a needle point, characterized in that

said first ground facet is of a substantially elliptical shape;

a plane which crosses said first ground facet perpendicularly thereto and comprises a central axis of said needle tube is regarded as a central plane; and

the needle point is not present on said central plane; and

said needle point is the only needle point.

2. (Original) An injection needle according to claim 1, wherein the minimum distance between said needle point and said central plane is in the range from 3 to 20% of the maximum outside diameter of said first ground facet in the direction of a minor axis thereof.

3. (Currently Amended) An injection needle having an edge surface comprising three ground facets formed on a distal end of a needle tube to provide a needle point, characterized in that

one of the ground facets which is remotest from said needle point is regarded as a first ground facet, and the other ground facets as a second ground facet and a third ground facet;

said needle point is located on a boundary between said second ground facet and said third ground facet; and

an angle α between said first ground facet and a central axis of said needle point, an angle Φ between said second ground facet and the central axis of said needle point, and an angle θ between said third ground facet and the central axis of said needle point are related to each other by: $\alpha < \Phi$, $\alpha < \theta$, and $\Phi \neq \theta$;

a plane which crosses said first ground facet perpendicularly thereto and comprises the central axis of said needle tube is regarded as a central plane;

the minimum distance between said needle point and said central plane is in the range from 3 to 20% of the maximum outside diameter of said edge surface in the direction of a minor axis thereof; and

said needle point is the only needle point.

4. (Deleted)

5. (Previously Presented) An injection needle according to claim 3, wherein the length of said second ground facet in the direction of the central axis and the length of said third ground facet in the direction of the central axis are in the range from 20 to 80% of the whole length of the ground facets in the direction of the central axis.

6. (Previously Presented) An injection needle according to claims 1, wherein when the injection needle pierces a silicone rubber sheet having a thickness of 0.5 mm at a penetration speed of 10 mm/mm., an initial value of the load with respect to a penetration distance is 6 gf/mm or less.

7. (Previously Presented) An injection needle according to claim 3, wherein when the injection needle pierces a silicone rubber sheet having a thickness of 0.5 mm at a penetration speed of 10 mm/mm., an initial value of the load with respect to a penetration distance is 6 gf/mm or less.

8. (Previously Presented) An injection needle according to claim 1, wherein a planar surface forming said first ground facet forms an angle α with a central axis of said needle point, a planar surface forming said second ground facet forms an angle Φ with the central axis of said needle point, and a planar surface forming said third ground facet forms an angle θ with the central axis of said needle point, and wherein $\alpha < \Phi$, $\alpha < \theta$, and $\Phi \neq \theta$.

9. (Currently Amended) An injection needle produced by a method comprising grinding a distal end portion of a needle tube to form a first ground facet, and grinding the first ground facet to form at least second and third ground facets which provide a needle point, the injection needle is characterized in that

a plane which crosses said first ground facet perpendicularly thereto and comprises a central axis of said needle tube is regarded as a central plane; and

the needle point is not present on said central plane; and
said needle point is the only needle point.

10. (Previously Presented) An injection needle according to claim 9, wherein the minimum distance between said needle point and said central plane is in the range from 3 to 20% of the maximum outside diameter of said first ground facet in the direction of a minor axis thereof.

11. (Previously Presented) An injection needle according to claim 9, wherein when the injection needle pierces a silicone rubber sheet having a thickness of 0.5 mm at a penetration speed of 10 mm/min., an initial value of the load with respect to a penetration distance is 6 gf/mn or less.

12. (Previously Presented) An injection needle according to claim 9, wherein a planar surface forming said first ground facet forms an angle α with a central axis of said needle point, a planar surface forming said second ground facet forms an angle Φ with the central axis of said needle point, and a planar surface forming said third ground facet forms an angle θ with the central axis of said needle point, and wherein $\alpha < \Phi$, $\alpha < \theta$, and $\Phi \neq \theta$.

13. (New) An injection needle according to claim 1, wherein the substantially elliptical shape of the first ground facet possesses a major axis, and said needle point is not present on said major axis.

14. (New) An injection needle according to claim 1, wherein the at least two ground facets comprise second and third ground facets each possessing a curved outer edge, the central plane intersecting a distal end region of the curved outer edge of one of the second and third ground facets.

15. (New) An injection needle according to claim 3, wherein said first ground facet is of a substantially elliptical shape possessing a major axis, and said needle point is not present on said major axis.

16. (New) An injection needle according to claim 3, wherein the second and third ground facets each possess a curved outer edge, the central plane intersecting a distal end region of the curved outer edge of one of the second and third ground facets.

17. (New) An injection needle according to claim 9, wherein said first ground facet is of a substantially elliptical shape possessing a major axis, and said needle point is not present on said major axis.

18. (New) An injection needle according to claim 9, wherein the second and third ground facets each possess a curved outer edge, the central plane intersecting a distal end region of the curved outer edge of one of the second and third ground facets.